AVOCET
ENVIRONMENTAL, INC.

June 22, 2009 Project No. 1155.010

Ms. Jennifer L. Wiley, PG, CEM
THE BOEING COMPANY
Environment, Health & Safety –
Environmental Remediation
4501 Conant Street, M/C D851-0097
Long Beach, California 90808

Field Data Report
June 2009 Groundwater Sampling
Quarterly/Semiannual Monitoring at Building 2 Area
Waste Discharge Requirements Order No. R4-2007-0040
Boeing Real Property Management Former C-6 Facility
Los Angeles, California

Dear Ms. Wiley:

This report has been prepared by Avocet Environmental, Inc. (Avocet) to summarize and present the field data collected during the June 2009 groundwater monitoring event at the Boeing Real Property Management (RPM) Former C-6 Facility in Los Angeles, California. The June 2009 monitoring included sampling for only the Building 2 WDR program. The monitoring was conducted pursuant to and in accordance with the following:

Avocet Environmental, Inc., May 26, 2009, Technical Memorandum, June 2009 Groundwater Sampling and Analysis Plan, Quarterly/Semiannual Monitoring at Building 2 Area, Waste Discharge Requirements Order No. R4-2007-0040, Boeing Corporate Real Estate Former C-6 Facility, Los Angeles, California (Attachment 1).

California Regional Water Quality Control Board, Los Angeles Region (LARWQCB), August 22, 2008, Approval of Revised Monitoring and Reporting Program CI-9310, Individual Waste Discharge Requirements Order No. R4-2007-0040, Boeing Corporate Real Estate, Former C-6 Facility, 19503 South Normandie, Los Angeles, California (File No. 95-036; SLIC No. 0410; Site ID No. 1846000).

Avocet Environmental, Inc., February 19, 2009, 2009 Groundwater Monitoring Work Plan, Boeing Former C-6 Facility, 19503 South Normandie Avenue, Los Angeles, California.

Field activities performed during the June 2009 monitoring event are discussed in the following sections. Figure 1 (Attachment 1) presents the locations of the groundwater monitoring wells included in the programs.

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GROUNDWATER SAMPLING ACTIVITIES

Groundwater monitoring in June 2009 was conducted in accordance with Revised Monitoring and Reporting Program CI-9310 (MRP), which is part of Individual WDR Order No. R4-2007-0040 (August 22, 2008). The Quarterly/Semiannual Building 2 WDR Monitoring Program called for fluid level measurement and sample collection from 6 wells. In accordance with the revised MRP, six wells were gauged for fluid levels and sampled. These six wells consist of the four Group B Wells (CMW026, IRZCMW002, IRZCMW003, and MWC024), the one Group C Well (CMW002), and the one Group D Well (IRZCMW001). A map showing the Building 2 WDR well locations is provided in Figure 1 (Attachment 1). All wells were also inspected for any damage or missing materials and described on field data forms. Field data forms are included in Attachment 2.

Six Building 2 WDR wells were purged and sampled on June 9, 2009 using dedicated low-flow bladder pumps and flow-through cells. All WDR wells were purged for sampling using low-flow (0.20-0.25 liters/minute) methods. A groundwater sample from one of the six WDR monitoring wells was tested for ferrous iron using a HACH DR/890 Colorimeter. A malfunction of the Colorimeter prevented testing of samples from the other wells. The field instruments were calibrated by EQUIPCO prior to the event and the calibration data sheets are included in Attachment 2.

All of the wells scheduled for water level measurement were gauged for depth to water on June 9, 2009 using a Solinst electronic water level sounder. The wells were also inspected for any damage or missing materials. Apart from one missing bolt (IRZCMW003), the wells were in good condition. Monitoring Well IRZCMW003 was fitted with a replacement bolt.

At the completion of purging, groundwater samples were collected in laboratory supplied containers, properly labeled, identified on the chain-of-custody, and submitted to TestAmerica Laboratory, an appropriately certified environmental testing laboratory located in Irvine, California. A normal 10-day turn-around time was requested for the lab analyses. For the WDR wells, groundwater samples were analyzed for one or more of the following:

- Volatile organic compounds (VOCs) by EPA Method 8260B,
- Total organic carbon (TOC) by EPA Method 9060,
- Volatile fatty acids (VFAs) by IC Method 8M23G (subcontracted by TestAmerica to Microseeps, Inc., Pittsburg, PA),
- Dissolved gases (ethane, ethene, and methane) by RSK 175 (subcontracted by TestAmerica to Air Technology Laboratory, Inc., City of Industry, CA),
- Dissolved minerals (sulfate, nitrate, nitrite, and chloride) by EPA Method 300 Series,
- Total Alkalinity by EPA Method 310,
- Quantitative polymerase chain reaction (qPCR) analysis for DHC 16S rRNA gene and functional genes tceA, bvcA, and vcrA (subcontracted by TestAmerica to North Wind, Inc., Pocatello, ID, (four Building 2, Group B wells only), and

- Total dissolved solids (TDS) by EPA Method 160.1 (for the Group C and D wells only).

Purge water (approximately 6 gallons) was placed in one appropriately labeled 55-gallon drum located adjacent to the treatment compound. The analytical results will be used to profile the purge water for transport to an appropriate off-site facility for treatment and disposal. Management, containerization, staging, profiling, and transportation will be conducted in accordance with procedures established by Boeing.

If you have any questions regarding this report or require additional information, please do not hesitate to call.

Respectfully submitted,

AVOCET ENVIRONMENTAL, INC.

Michael A Rendina

Michael A. Rendina, C.Hg.
Principal

MAR:sh
Attachments:

Attachment 1: June 2009 Groundwater Sampling and Analysis Plan
Attachment 2: Field Data Forms

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AVOCET ENVIRONMENTAL, INC.

Attachment 1

June 2009 Groundwater Sampling and Analysis Plan

AVOCET
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May 26, 2008 Project No. 1155.010

Ms. Jennifer Wiley, P.G. (via electronic mail only)
THE BOEING COMPANY
Environment, Health & Safety –
Environmental Remediation
4501 East Conant Street, M/C D851-0097
Long Beach, California 90808

Technical Memorandum
June 2009 Groundwater Sampling and Analysis Plan
Quarterly/Semiannual Monitoring at Building 2 Area
Waste Discharge Requirements Order No. R4-2007-0040
Boeing Corporate Real Estate Former C-6 Facility
Los Angeles, California

Dear Ms. Wiley:

This memorandum has been prepared by Avocet Environmental, Inc. (Avocet) and presents the sampling and analysis plan (SAP) for the June 2009 groundwater monitoring event at Boeing Real Property Management's (RPM's) Former C-6 Facility in Los Angeles, California. This monitoring is being conducted pursuant to and in accordance with California Regional Water Quality Control Board, Los Angeles Region (LARWQCB) *Approval of Revised Monitoring and Reporting Program CI-9310, Individual Waste Discharge Requirements (WDR) Order No. R4-2007-0040* (the WDR Order) issued August 22, 2008.

Under the revised WDR Order, the June 2009 monitoring event includes sample collection from the six Former Building 2 periodic slug injection monitoring wells. This event marks the third of four quarterly monitoring events specified in the revised WDR Order.

Field Activities

The June 2009 WDR groundwater monitoring event will include only the former Building 2 portion of the program – the former Building 1/36 portion of the monitoring program is now on a semiannual schedule with the next event planned for September 2009. The Building 2 WDR groundwater monitoring program is summarized in Table 1. A map showing the well locations is provided in Figure 1. The quarterly former Building 2 WDR monitoring program calls for fluid level measurement and sample collection from 6 wells. These six wells consist of the four Group B wells (CMW026, IRZCMW002, IRZCMW003, and MWC024), one Group C well (CMW002), and one Group D well (IRZCMW001). A list of the WDR wells to be monitored, broken out by Group, is provided in Table 1. A map showing the former Building 2 WDR well locations is provided in Figure 1.

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The scope of work will include all tasks associated with collecting the field measurements and laboratory samples required to comply with the WDR Order and 2009 Work Plan. In brief, these activities will include water level measurements, groundwater well purging and sampling, and sample analyses. Additional activities such as pre-field documentation, waste management, and reporting are addressed in the Work Plan. Specifically, the June 2009 groundwater monitoring activities will include the following:

- Prior to any disturbance, depth to groundwater will be measured to the nearest one-hundredth of a foot in each of the 6 wells using a Solinst (or equivalent) well sounder. Monitoring well vapor concentrations will be measured with a photoionization detector (PID) following removal of the well cap. All water level measurements will be collected within a single 24-hour period using calibrated water level sounders. Water levels in wells with submerged screens that are noted to be under pressure upon removal of the well cap will be allowed time to stabilize prior to water level gauging.
- Groundwater samples are scheduled for collection from 6 WDR wells (Table 1) during the June 2009 monitoring event. Prior to sampling, the wells will be purged using low-flow methods to assure representative samples are collected from the formation. During purging, the flow rate at each location will be maintained between 0.1 and 0.5 L/min, dependent on site-specific and well-specific factors as drawdown is not to exceed 0.3 feet in any well.
- During well purging, biogeochemical parameters including pH, temperature, electric conductivity (EC), dissolved oxygen (DO), and oxygen-reduction potential (ORP) will be periodically measured using a flow-thru cell and QED multiparameter meter or equivalent. In addition, turbidity will be measured using a Lamotte 2020 turbidimeter; ferrous iron (Fe(II)) will be measured using a Hach DR890 Colorimeter; and approximately ten percent of the dissolved oxygen measurements will be confirmed using a CHEMetrics, Inc. test kit. Purging will continue until three consecutive measurements are within +/-0.2 for pH, +/-3% for EC, +/-10% for DO, and +/-20 mV for ORP (ASTM, 2002).
- At the completion of purging, groundwater samples will be collected in laboratory-supplied containers, labeled in accordance with Boeing's Data Management Plan (CH2M Hill, 2007), placed on ice in a cooler, identified on the chain-of-custody, and submitted to appropriately-certified environmental testing laboratories.

Samples collected from the Building 2 WDR wells will be analyzed for one or more of the following as detailed in Table 1:

- volatile organic compounds (EPA Method 8260B);
- total organic carbon (EPA 9060);
- volatile fatty acids by IC Method 8M23G (Microseeps, Inc., Pittsburg, PA);

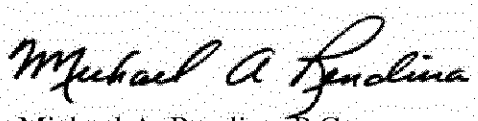
- dissolved hydrocarbon gases (ethene, ethane, and methane by RSK 175);
- total alkalinity (EPA Method 310.1);
- anions (sulfate, nitrate, nitrite, and chloride by EPA Method 300 Series);
- total dissolved solids (EPA Method 160.1); and
- Quantitative Polymerase Chain Reaction (qPCR) analysis for DHC 16S rRNA gene and functional genes tceA, bvcA, and vcrA (North Wind, Inc., Pocatello, ID).

Closing Remarks

Groundwater monitoring is scheduled to commence at the site on Tuesday, June 9, 2009. Avocet Environmental, Inc. appreciates the opportunity to be of service to Boeing Real Property Management. If you have any questions, please do not hesitate to call.

Respectfully submitted,

AVOCET ENVIRONMENTAL, INC.



Michael A. Rendina, P.G.
Principal

MAR:sh
Enclosure

cc: Mr. Joe Weidmann – Haley & Aldrich
Mr. Ravi Subramanian - CDM

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Table

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Table 1
June 2009 Former Building 2 WDR Groundwater Monitoring Program
BRPM Former C-6 Facility,
Los Angeles, California

Well Information			Field Program				Laboratory Program								Comments
Well Name	Sampling Group	Hydrostratigraphic Unit	Total Select VOCs Concentration (µg/l)	Sampling Order	Water Level Measurement	Field Parameters	VOCs EPA 8260B	TOC EPA 9060 Modified	Volatile Fatty Acids IC Method 8M23G (Microseeps)	Dissolved Hydrocarbon Gases (DHGs) Methane, Ethane, Ethene RSK 175	Alkalinity EPA 310.1	Anions (NO_3, NO_2, Cl, SO_4) EPA 300.0	Total Dissolved Solids EPA 160.1	DHC 16S rRNA gene and functional genes tceA, bvcA, and vcrA; by qPCR analysis (North Wind)	
Group A Wells															
IRZC0001 & IRZC0003 through IRZC0020	A	C-Sand	-	-											Not accessible for sampling
Group B Wells															
CMW026	B	C-Sand	905	2	x	x	x	x	x	x	x	x		x	Q3 WDR Monitoring
IRZCMW003	B	C-Sand	11,266	6	x	x	x	x	x	x	x	x		x	Q3 WDR Monitoring
IRZCMW002	B	C-Sand	2,617	5	x	x	x	x	x	x	x	x		x	Q3 WDR Monitoring
MWC024	B	C-Sand	2,592	4	x	x	x	x	x	x	x	x		x	Q3 WDR Monitoring
Group C Wells															
CMW002	C	B-Sand	300	1	x	x	x	x	x	x	x	x	x	x	Q3 WDR Monitoring
Group D Well															
IRZCMW001	D	B-Sand	1,591	3	x	x	x	x	x	x	x	x	x	x	Q3 WDR Monitoring
Quality Control Samples															
Duplicates (1 per 20 wells)							x (est. 1)								
Rinsate Blanks (1 per day)							(est. 0)								dedicated pumps
Trip Blanks (1 per cooler)							x (est. 1)								
			Totals:		6	6	8	6	6	6	6	6	2	6	

Notes: Field Parameters = pH, DO, ORP, EC, temp, turb, and ferrous iron.
pH = Potential of Hydrogen
DO = Dissolved Oxygen
ORP = Oxidation Reduction Potential
EC = Electrical Conductivity
Temp = Temperature
Turb = Turbidity
µg/l = Micrograms per liter
"Total Select VOCs Concentration" reflects the sum of PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, and VC (March 2009).

VOCs = Volatile organic compounds
EPA = U.S. Environmental Protection Agency
TOC = Total Organic Carbon
DHGs = Dissolved hydrocarbon gases
NO_3 = Nitrate, NO_2 = Nitrite, Cl = Chloride, SO_4 = Sulfate
DHC = *dehalococcoides spp.* strains
qPCR = Quantitative Polymerase Chain Reaction

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Figure

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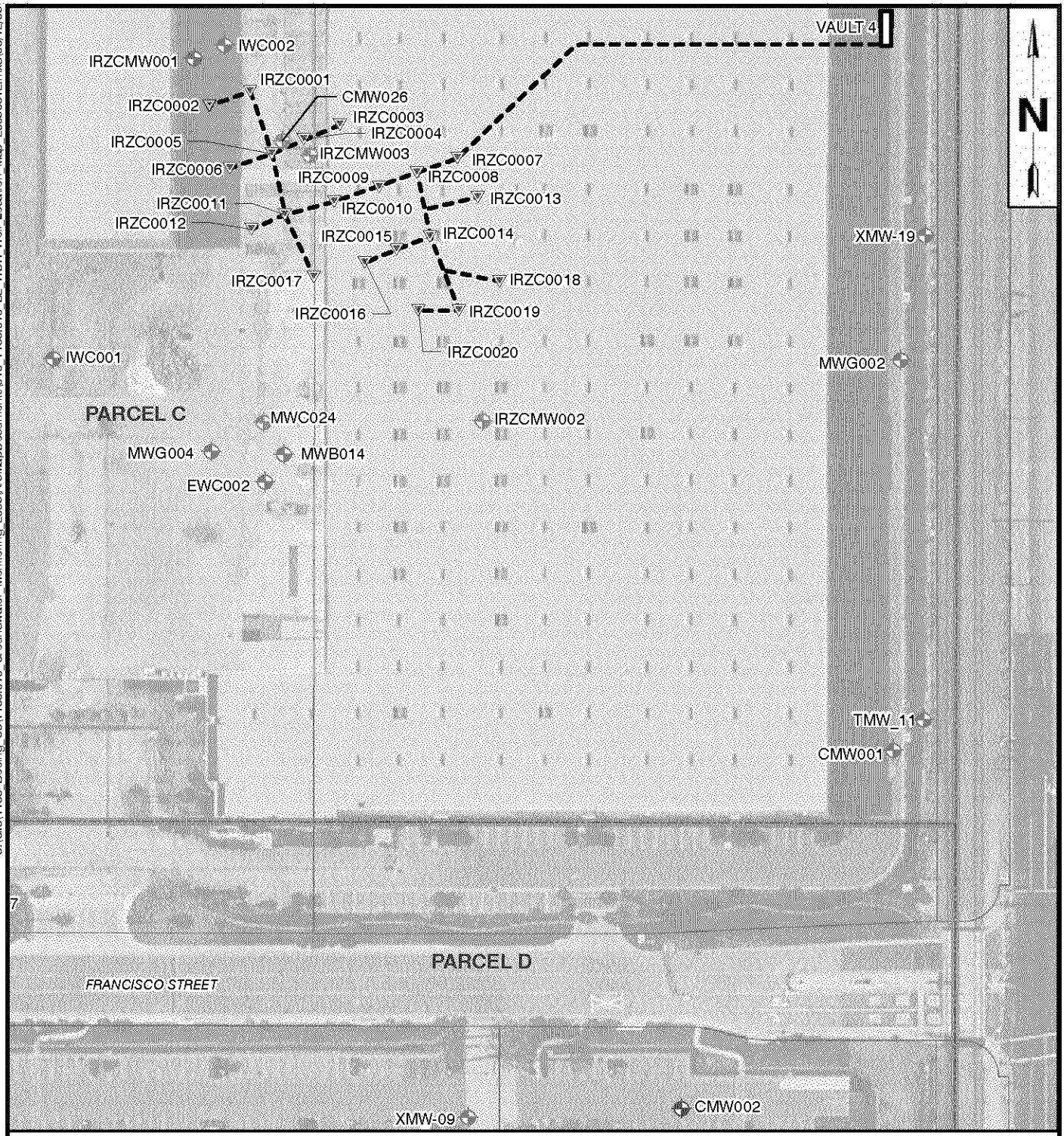

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LEGEND

- WDR Amendment Point
- Non-WDR Amendment Point
- Group B WDR Monitoring Well
- Group C WDR Monitoring Well
- Group D WDR Monitoring Well
- Non-WDR Groundwater Monitoring Well
- Amendment Well Piping System

0 100 200

SCALE

FIGURE 1

WDR WELL LOCATION MAP
FORMER BUILDING 2 AREA

BOEING REAL PROPERTY MANAGEMENT
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

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Attachment 2

Field Data Forms

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GROUNDWATER SAMPLING DATA SHEET

Project Name:	Boeing C-6 Facility, WDR Sampling, June-09	**Date:**	6/9/09
Project No.:	1155.010	**Prepared by:**	BCB
Well Identification:	IRZCMW003	**Weather:**	Overcast / Cool
Measurement Point Description:	TOC-N	**Pump Intake:**	105 **Screen:** 92 - 117

A	B	C	D = C - B	E = B - A	G = D x F	H = 25 x F	I = (top screen-B) x F	
Depth to LNAPL (ft-bmp)	**Depth to Static Water Level** (ft-bmp)	**Well Total Depth** (ft-bmp)	**Water Column Height** (ft)	**LNAPL Thickness** (ft)	**One Casing Volume** (gallons)	**Screen Volume** (gallons)	**Above Screen Volume** (gal.)	**Total Purge Volume** (gal.)
—	59.29	117	57.71		N/A	N/A	N/A	N/A

	Gallons/Foot			
Well Diameter (inches) = 4	0.75	2	(4)	6
F - **Gallons per foot of casing**	0.02	0.16	0.65	1.47

Field Equipment: QED, Dedicated Low-flow

Purge Method: Micropurge

Well Condition: Missing 1 bolt / Replaced w/ 5/8 x 11 x 1 3/4"

Time	Flow Controller Settings	Volume Purged (Liters)	Flow Rate (mL/min)	Water Level (ft-bmp)	Temperature (°C) [+/- 10%]	Conductivity (mS/cm) [+/- 10%]	Dissolved Oxygen (mg/L) [+/- 10%]	pH [+/- 0.1 pH]	ORP (mV) [+/- 10%]	Turbidity (NTU) [+/- 10%]	Observations
Previous Stabilized Parameters: 03-12-09						0.97	0.260	7.29	-80.00	2.60	
1252	10/58 @ 80psi	—	~250	59.29	21.67	0.998	0.67	7.07	-250	3.11	Colorless
1255	↓	750	↓	59.32	21.66	0.996	0.56	7.10	-254	3.02	"
1258		1500		59.34	21.65	0.997	0.39	7.18	-260	2.91	"
1301		2250		59.37	21.64	0.995	0.28	7.20	-267	2.80	"
1304		3000		59.40	21.63	0.996	0.20	7.21	-270	2.79	"
1307	↓	3750	↓	59.41	21.63	0.994	0.14	7.21	-274	2.78	"

Purge Start Time	Purge End Time	Average Flow (mL/min)	Total Volume Purged (Liters)	Total Casing Volumes Purged	80% Recovery Water Level Depth (Dx0.20) + B	Water Level at Sampling Time (ft bmp)	Sample Collection Time	Sample Identification
1252	1307	~250	3.75	N/A	NA	59.41	1307	IRZCMW003_WG20090609_01

Notes: (units) [stabilization criteria]

DUP:

DRUM NO:

AVOCET ENVIRONMENTAL, INC.

GROUNDWATER SAMPLING DATA SHEET

Project Name:	Boeing C-6 Facility, WDR Sampling, June-09	**Date:**	6/9/09
Project No.:	1155.010	**Prepared by:**	BCB
Well Identification:	IRZCMW002	**Weather:**	Overcast / Cool
Measurement Point Description:	TOC-N	**Pump Intake:**	C05
		Screen:	96 - 121

A	B	C	D = C - B	E = B - A	G = D x F	H = 25 x F	I = (top screen-B) x F	
Depth to LNAPL (ft-bmp)	**Depth to Static Water Level** (ft-bmp)	**Well Total Depth** (ft-bmp)	**Water Column Height** (ft)	**LNAPL Thickness** (ft)	**One Casing Volume** (gallons)	**Screen Volume** (gallons)	**Above Screen Volume** (gal.)	**Total Purge Volume** (gal.)
—	63.38	121	57.62		N/A	N/A	N/A	N/A

	Gallons/Foot			
Well Diameter (inches) = 4	0.75	2	(4)	6
F - **Gallons per foot of casing**	0.02	0.16	0.65	1.47

Field Equipment: QED, Dedicated Low-flow
Purge Method: Micropurge
Well Condition:

Time	Flow Controller Settings	Volume Purged (Liters)	Flow Rate (mL/min)	Water Level (ft-bmp)	Temperature (°C) [+/- 10%]	Conductivity (mS/cm) [+/- 10%]	Dissolved Oxygen (mg/L) [+/- 10%]	pH [+/- 0.1 pH]	ORP (mV) [+/- 10%]	Turbidity (NTU) [+/- 10%]	Observations
Previous Stabilized Parameters: 03-12-09						1.89	0.360	6.65	-150.00	1.30	
1121	10/5s @ 80psi	—	~250	63.38	20.94	1.95	0.97	6.52	-162	2.31	colorless
1124	↓	750	↓	63.72	20.99	1.97	0.64	6.45	-176	2.01	"
1127		1500		63.81	21.01	1.98	0.34	6.46	-191	1.77	"
1130		2250		63.88	21.05	1.98	0.22	6.45	-196	1.44	"
1133		3000		63.92	21.06	1.99	0.14	6.44	-199	1.42	"
1136	↓	3750	↓	63.97	21.07	1.99	0.12	6.45	-202	1.41	"

Purge Start Time	Purge End Time	Average Flow (mL/min)	Total Volume Purged (Liters)	Total Casing Volumes Purged	80% Recovery Water Level Depth (Dx0.20) + B	Water Level at Sampling Time (ft bmp)	Sample Collection Time	Sample Identification
1121	1136	250	3.75	N/A	NA	63.97	1136	IRZCMW002_WG20090609_01

Notes: (units) [stabilization criteria]

DUP: IRZCMW002_WG20090609_02
DRUM NO:

AVOCET ENVIRONMENTAL, INC.

GROUNDWATER SAMPLING DATA SHEET

Project Name:	Boeing C-6 Facility, WDR Sampling, June-09	**Date:**	6/9/09
Project No.:	1155.010	**Prepared by:**	BCB
Well Identification:	MWC024	**Weather:**	Overcast / Cool
Measurement Point Description:	TOC-N	**Pump Intake:**	COS
		Screen:	96 - 121

A	B	C	D = C - B	E = B - A	G = D x F	H = 25 x F	I = (top screen-B) x F	
Depth to LNAPL (ft-bmp)	**Depth to Static Water Level** (ft-bmp)	**Well Total Depth** (ft-bmp)	**Water Column Height** (ft)	**LNAPL Thickness** (ft)	**One Casing Volume** (gallons)	**Screen Volume** (gallons)	**Above Screen Volume** (gal.)	**Total Purge Volume** (gal.)
—	59.34	121	61.66		N/A	N/A	N/A	N/A

	Gallons/Foot			
Well Diameter (inches) = 4	0.75	2	(4)	6
F - **Gallons per foot of casing**	0.02	0.16	0.65	1.47

Field Equipment: QED, Dedicated Low-flow

Purge Method: Micropurge

Well Condition:

Time	Flow Controller Settings	Volume Purged (Liters)	Flow Rate (mL/min)	Water Level (ft-bmp)	Temperature (°C) [+/- 10%]	Conductivity (mS/cm) [+/- 10%]	Dissolved Oxygen (mg/L) [+/- 10%]	pH [+/- 0.1 pH]	ORP (mV) [+/- 10%]	Turbidity (NTU) [+/- 10%]	Observations
Previous Stabilized Parameters: 03-12-09						1.39	0.010	7.15	-57.00	1.40	
1010	10/5s @ 80psi	—	250	59.34	21.83	1.424	0.99	6.92	-146	2.70	colorless
1013	↓	750	↓	59.37	21.74	1.473	0.72	6.94	-131	2.55	"
1016		1500		59.39	21.73	1.494	0.38	6.94	-80	2.21	"
1019		2250		59.37	21.71	1.493	0.33	6.94	-67	2.07	"
1022		3000		59.38	21.71	1.495	0.29	6.94	-52	1.91	"
1025	↓	3750	↓	59.37	21.71	1.494	0.28	6.94	-47	1.75	"

Purge Start Time	Purge End Time	Average Flow (mL/min)	Total Volume Purged (Liters)	Total Casing Volumes Purged	80% Recovery Water Level Depth (Dx0.20) + B	Water Level at Sampling Time (ft bmp)	Sample Collection Time	Sample Identification
1010	1025	250	3.75	N/A	NA	59.37	1025	MWC024_WG20090609_01

Notes: (units) [stabilization criteria]

DUP:

DRUM NO:

AVOCET ENVIRONMENTAL, INC.

GROUNDWATER SAMPLING DATA SHEET

Project Name:	Boeing C-6 Facility, WDR Sampling, June-09	**Date:**	6/9/09
Project No.:	1155.010	**Prepared by:**	BCB
Well Identification:	IRZCMW001	**Weather:**	Overcast / Cool
Measurement Point Description:	TOC-N	**Pump Intake:**	105
		Screen:	92 - 117

A	B	C	D = C - B	E = B - A	G = D x F	H = 25 x F	I = (top screen-B) x F	
Depth to LNAPL (ft-bmp)	**Depth to Static Water Level** (ft-bmp)	**Well Total Depth** (ft-bmp)	**Water Column Height** (ft)	**LNAPL Thickness** (ft)	**One Casing Volume** (gallons)	**Screen Volume** (gallons)	**Above Screen Volume** (gal.)	**Total Purge Volume** (gal.)
—	59.24	117	57.76	—	N/A	N/A	N/A	N/A

	Gallons/Foot			
Well Diameter (inches) = 4	0.75	2	(4)	6
F - **Gallons per foot of casing**	0.02	0.16	0.65	1.47

Field Equipment: QED, Dedicated Low-flow

Purge Method: Micropurge

Well Condition: Good

Time	Flow Controller Settings	Volume Purged (Liters)	Flow Rate (mL/min)	Water Level (ft-bmp)	Temperature (°C) [+/- 10%]	Conductivity (mS/cm) [+/- 10%]	Dissolved Oxygen (mg/L) [+/- 10%]	pH [+/- 0.1 pH]	ORP (mV) [+/- 10%]	Turbidity (NTU) [+/- 10%]	Observations
Previous Stabilized Parameters: 03-12-09						1.30	0.350	7.08	-90.00	2.10	
0902	10.5 s @ 80 psi	—	~250	59.24	21.27	1.52	1.35	6.48	-93	2.27	colorless
0905	↓	750	↓	59.35	21.65	1.306	1.10	6.54	-178	2.22	"
0908		1500		59.38	21.63	1.291	0.43	6.67	-152	2.19	"
0911		2250		59.40	21.63	1.290	0.37	6.69	-144	2.17	"
0914		3000		59.40	21.63	1.291	0.28	6.72	-137	2.15	"
0917		3750		59.41	21.62	1.291	0.31	6.74	-134	2.14	"

Purge Start Time	Purge End Time	Average Flow (mL/min)	Total Volume Purged (Liters)	Total Casing Volumes Purged	80% Recovery Water Level Depth (Dx0.20) + B	Water Level at Sampling Time (ft bmp)	Sample Collection Time	Sample Identification
0902	0917	250	3.75	N/A	NA	59.41	0917	IRZCMW001_WG20090609_01

Notes: (units) [stabilization criteria]

DUP:

DRUM NO:

AVOCET ENVIRONMENTAL, INC.

GROUNDWATER SAMPLING DATA SHEET

Project Name:	Boeing C-6 Facility, WDR Sampling, June-09	**Date:**	6/9/09
Project No.:	1155.010	**Prepared by:**	BCB
Well Identification:	CMW002	**Weather:**	Overcast / Cool
Measurement Point Description:	TOC-N	**Pump Intake:**	105
		Screen:	99 - 124

A	B	C	D = C - B	E = B - A	G = D x F	H = 25 x F	I = (top screen-B) x F	
Depth to LNAPL (ft-bmp)	**Depth to Static Water Level** (ft-bmp)	**Well Total Depth** (ft-bmp)	**Water Column Height** (ft)	**LNAPL Thickness** (ft)	**One Casing Volume** (gallons)	**Screen Volume** (gallons)	**Above Screen Volume** (gal.)	**Total Purge Volume** (gal.)
—	60.78	124	63.22	—	N/A	N/A	N/A	N/A

	Gallons/Foot			
Well Diameter (inches) = 4	0.75	2	(4)	6
F - **Gallons per foot of casing**	0.02	0.16	0.65	1.47

Field Equipment: QED, Dedicated Low-flow
Purge Method: Micropurge
Well Condition: Good

Time	Flow Controller Settings	Volume Purged (Liters)	Flow Rate (mL/min)	Water Level (ft-bmp)	Temperature (°C) [+/- 10%]	Conductivity (mS/cm) [+/- 10%]	Dissolved Oxygen (mg/L) [+/- 10%]	pH [+/- 0.1 pH]	ORP (mV) [+/- 10%]	Turbidity (NTU) [+/- 10%]	Observations
Previous Stabilized Parameters: 03-12-09						0.99	0.560	7.15	-38.00	1.30	
0720	10/5s @ 80 psi	0	250	60.78	21.31	1.009	3.92	5.75	-78	2.7	colorless
0723	↓	750	↓	60.80	21.54	1.013	1.91	6.07	-89	2.1	"
0727		1500		"	21.61	1.015	1.39	6.25	-59	1.7	"
0730		2250		"	21.65	1.015	1.11	6.	-43	1.6	"
0733		3000		"	21.66	1.014	1.05	6.47	-38	1.6	"
0735	↓	3750	↓	60.80	21.67	1.014	1.07	6.52	-39	1.5	"

Purge Start Time	Purge End Time	Average Flow (mL/min)	Total Volume Purged (Liters)	Total Casing Volumes Purged	80% Recovery Water Level Depth (Dx0.20) + B	Water Level at Sampling Time (ft bmp)	Sample Collection Time	Sample Identification
0720	0735	~250	3.75	N/A	NA	60.80	0735	CMW002_WG20090609_01

Notes: (units) [stabilization criteria]

DUP:
DRUM NO:

AVOCET ENVIRONMENTAL, INC.

GROUNDWATER SAMPLING DATA SHEET

Project Name:	Boeing C-6 Facility, WDR Sampling, June-09	**Date:**	6/9/09
Project No.:	1155.010	**Prepared by:**	BCB
Well Identification:	CMW026	**Weather:**	Overcast / Cool
Measurement Point Description:	TOC- N	**Pump Intake:**	105
		Screen:	92 - 117

A	B	C	D = C - B	E = B - A	G = D x F	H = 25 x F	I = (top screen-B) x F	
Depth to LNAPL (ft-bmp)	Depth to Static Water Level (ft-bmp)	Well Total Depth (ft-bmp)	Water Column Height (ft)	LNAPL Thickness (ft)	One Casing Volume (gallons)	Screen Volume (gallons)	Above Screen Volume (gal.)	Total Purge Volume (gal.)
-	59.14	117	57.86		N/A	N/A	N/A	N/A

	Gallons/Foot			
Well Diameter (inches) = 4	0.75	2	(4)	6
F - **Gallons per foot of casing**	0.02	0.16	0.65	1.47

Field Equipment: QED, Dedicated Low-flow
Purge Method: Micropurge
Well Condition: Good

Time	Flow Controller Settings	Volume Purged (Liters)	Flow Rate (mL/min)	Water Level (ft-bmp)	Temperature (°C) [+/- 10%]	Conductivity (mS/cm) [+/- 10%]	Dissolved Oxygen (mg/L) [+/- 10%]	pH [+/- 0.1 pH]	ORP (mV) [+/- 10%]	Turbidity (NTU) [+/- 10%]	Observations
Previous Stabilized Parameters: 03-12-09						2.15	0.340	6.73	-135.00	2.60	
0824	10 psi @ 75 psi	0	250	59.14	21.15	1.94	3.31	6.69	-97	2.77	colorless
0827	↓	750	↓	59.20	21.37	1.92	2.11	6.59	-121	2.72	↓
0830		1500		59.29	21.53	1.90	0.33	6.34	-172	2.69	
0833		2250		59.30	21.52	1.90	0.27	6.33	-177	2.68	
0836		3000		59.32	21.53	1.90	0.23	6.33	-182	2.67	
0839	↓	3750	↓	59.34	21.53	1.90	0.21	6.33	-183	2.67	↓

Purge Start Time	Purge End Time	Average Flow (mL/min)	Total Volume Purged (Liters)	Total Casing Volumes Purged	80% Recovery Water Level Depth (Dx0.20) + B	Water Level at Sampling Time (ft bmp)	Sample Collection Time	Sample Identification
0824	0839	250	3.75	N/A	NA	59.34	0839	CMW026_WG20090609_01

Notes: (units) [stabilization criteria]
F.I = 1.37

DUP:
DRUM NO:

EQUIPCO RENTALS

QED MP-20DT RENTAL
CALIBRATION CERTIFICATE

SERVICE TECHNICIAN: TH DATE: 6/8/09

INSTRUMENT INFORMATION

RENTAL I.D. NUMBER: MP-20D .04
SERIALNUMBER:

CALIBRATION INFORMATION

PARAMETERS:	STANDARDS:	PASS ( )	LOT#
1. CONDUCTIVITY	1,000 µMhos	✓	6431
2. pH ZERO	pH 7	✓	1808577
3. pH SLOPE	pH 4	✓	2807413
ph SLOPE	pH 10	✓	1807077
4. DISSOLVED OXYGEN	Air Calibration Barometric pressure = 760mmHg	✓	n/a
5. DISSOLVED OXYGEN ZERO TEST	(sodium sulfite)	✓	
6. TURBIDITY ZERO	0.0 NTU's	✓	100A
7. TURBIDITY SPAN	20 NTU's	✓	5070A
8. REDOX (ORP)	237.5 mV (YSI Zobell solution)	✓	051107

17935 Sky Park Circle, Suite H, Irvine, CA 92614 Phone (949)263-0236 Fax (949)263-1306

AVOCET ENVIRONMENTAL, INC.

QA/QC SAMPLE IDENTIFICATION FORM

Project Name:	Boeing Former C-6 Facility, Building 2 WDR Groundwater Monitoring, June 2009	Project No.:	1155.010

Date	Time	QA/QC Sample Type (Duplicate, Field Blank, Equipment Blank, Split)	Sample ID	Sample Location	Primary Sample Reference	Analytical Methods	Organic-Free Water Source	Field Personnel	Comments
06/09/09	-	Trip Blank	TB_AV20090609_01	-		8260B	TA-I	BCB	
06/09/09	11:36	Duplicate	IRZCMW002_WG20090609_02	IRZCMW002	IRZCMW002_WG20090609_01	8260B	-	BCB	

AVOCET ENVIRONMENTAL, INC.

16 Technology Drive, Suite 154
Irvine, California 92618-2327
TEL (949) 296-0977
FAX (949) 296-0978

Sheet 1 of 1 ISF0935 Boeing CoC No. AV20090609A

CHAIN OF CUSTODY RECORD

Project Information:

Site Name	Boeing Former C-6 Facility; B2 WDR Sampling, June 2009
Site Address	Los Angeles, CA
Project No.	1155.010
Project Manager	Michael Rendina
Sampled By	BCB
Turn-Around-Time	Standard TAT

Sample Identification	Sample Date	Sample Time	Matrix	No. of Cntnrs.	Lab I.D. Number	VOCs EPA 8260B	TOC EPA 9060 Modified	Volatile Fatty Acids 24 Hr HT IC Method 8M23G (Microseeps)	Dissolved Hydrocarbon Gases (DHGs) Methane, Ethane, Ethene - RSK 175	Alkalinity SM2320B	Anions (NO3, NO2, Cl, SO4) EPA 300.0	Hexavalent Chromium EPA 7199	Dissolved Metals EPA 6010B	Total Dissolved Solids (TDS) SM2540C	DHC 16S by qPCR analysis (North Wind) 24Hr HT	Chlorides	Comments
CMW002_WG20090609_01	06/09/09	0795	WATER	11		X	X	X	X	X	X			X	X		
CMW026_WG20090609_01	06/09/09	0839	WATER	11		X	X	X	X	X	X				X		
IRZCMW002_WG20090609_01	06/09/09	1136	WATER	11		X	X	X	X	X	X				X		
IRZCMW002_WG20090609_02	06/09/09	1136	WATER	3		X											
IRZCMW001_WG20090609_01	06/09/09	0917	WATER	11		X	X	X	X	X	X			X	X		
MWC024_WG20090609_01	06/09/09	1025	WATER	11		X	X	X	X	X	X				X		
IRZCMW003_WG20090609_01	06/09/09	1307	WATER	11		X	X	X	X	X	X				X		
TB_AV~~20090312~~_01	06/09/09	-	WATER	3		X											
20090609																	

Analyses

48HR HT for NO_3

Please forward VFA & qPCR analyses to identified laboratories ASAP.

Relinquished by	Company	Received by	Company
Printed Name: Brian Bowman	Avocet Environmental, Inc.	Printed Name: Sam Dodd	TA
Signature:		Signature:	
Date: 6/9/09		Date: 6-9-09	
Time: 1425		Time: 1425	
Printed Name: Sam Dodd		Printed Name: Tracy Nguyen	TAT
Signature:		Signature:	
Date: 6-9-09		Date: 6/9/09	
Time: 3:15pm		Time: 1515	
Printed Name:		Printed Name:	
Signature:		Signature:	
Date:		Date:	
Time:		Time:	

Sample Receipt	Billing Information	
Total Containers	Bill To: Michael Rendina, P.G. AVOCET ENVIRONMENTAL, INC. 16 Technology Dive, Suite 154 Irvine, CA 92618-2327	DHC PCR Analyses require overnight delivery to NorthWind in Pittsburgh, PA Primary DHG analyses will continue to be analyzed by ATL. Please bill to Avocet. Please report electronically in accordance with Boeing standards. If any questions, please call Mike Rendina @ (949) 296 0977 Ext.103
Temperature °C 4.3 °F		
COC Seal (Y/N/NA)		

018

TF 6/9/09 1610

C:\Documents and Settings\David\Desktop\1155\June 2009\Master COC_AV20090